What is claimed is:

1. A method for flow-through infrared sensing the concentration of methanol in aqueous solution in connection with a fuel circulation loop of a direct methanol fuel cell, comprising:

transmitting infrared light through a fuel sample and a reference liquid;

receiving the infrared light that is not absorbed by the fuel sample and reference liquid by first and second infrared detectors, respectively;

outputting a signal based upon the infrared light received by the first and second infrared detectors; and

processing the signal with a processor to determine the concentration of methanol in the fuel sample.

2. A method according to claim 1, further including controlling the flow rate of methanol into a fuel mixer based upon the determined concentration.

3. A method according to claim 1, wherein the reference liquid is water.

4. A method according to claim 1, wherein the reference liquid is a fixed known concentration of methanol in water.

5. A method according to claim 1, wherein said transmitting includes transmitting said infrared light through a thin interference layer.

6. A method according to claim 1, wherein said transmitting includes transmitting narrow band infrared light.

7. A flow-through infrared sensor system for sensing the concentration of methanol in aqueous solution in connection with a fuel circulation loop of a direct methanol fuel cell, comprising:

an infrared source for transmitting infrared light through a fuel sample and a reference liquid;

a first infrared detector for receiving the infrared light that is not absorbed by the fuel sample

a second infrared detector for receiving the infrared light that is not absorbed by the reference liquid;

means for outputting a signal based upon the infrared light received by the first and second infrared detectors; and

a processor for processing the signal to determine the concentration of methanol in the fuel sample.

8. A system according to claim 7, further including a flow rate controller that controls the flow rate of methanol into a fuel mixer based upon a control signal output by the processor after the processor determines the concentration of methanol in the fuel sample.

9. A system according to claim 7, wherein the reference liquid is water.

10. A system according to claim 7, wherein the reference liquid is a fixed known concentration of methanol in water.

11. A system according to claim 7, wherein the infrared light is transmitted through a thin interference layer.

12. A system according to claim 7, wherein the infrared source transmits narrow band infrared light.

13. A method for window type infrared sensing the concentration of methanol in aqueous solution in connection with a fuel circulation loop of a direct methanol fuel cell, comprising:

positioning a window type infrared sensor such that a window surface of the sensor is in contact with a fuel sample;

transmitting infrared light through a first opening of the sensor into a reflectance crystal medium of the sensor against the window surface at an angle, thereby reflecting the infrared light against the window surface and a wall of the sensor a plurality of times prior to the infrared light exiting the medium through a second opening;

receiving the infrared light that exits the second opening by an infrared detector;

outputting a signal based upon the infrared light received by the first infrared detector; and

processing the signal with a processor to determine the concentration of methanol in the fuel sample.

14. A method according to claim 13, wherein the positioning includes one of (1) positioning the sensor in a wall of a fuel line, which inputs fuel to the direct methanol fuel cell and (2) positioning the sensor in the wall of a fuel mixer component that includes the fuel output to said fuel line.

15. A method according to claim 13, further including controlling the flow rate of methanol into a fuel mixer based upon the determined concentration.

16. A method according to claim 13, wherein said transmitting includes transmitting narrow band infrared light.

17. A method according to claim 13, wherein said transmitting includes transmitting the infrared light through a first thin layer filter included in the first opening and said infrared light exits said medium through a second thin layer filter included in said second opening.

18. A window type infrared sensor system for sensing the concentration of methanol in aqueous solution in connection with a fuel circulation loop of a direct methanol fuel cell, comprising:

a container having a fuel sample inside;

a window type infrared sensor comprising a first opening, a second opening, a reflectance medium, a window surface and a wall opposite said window surface, wherein said sensor is coupled to the container such that the window surface of the sensor is in contact with the fuel sample;

an infrared light source for transmitting infrared light through the first opening into the reflectance crystal medium against the window surface at an angle, thereby reflecting the infrared light against the window surface and the wall of the sensor a

plurality of times prior to the infrared light exiting the medium through the second opening;

an infrared detector for receiving the infrared light that exits the second opening;

means for outputting a signal based upon the infrared light received; and

a processor for processing the signal to determine the concentration of methanol in the fuel sample.

19. A system according to claim 18, wherein the container is one of (1) a fuel line that inputs fuel to the direct methanol fuel cell and (2) a fuel mixer component that includes the fuel that is output to said fuel line.

20. A system according to claim 18, further including a flow rate controller that controls the flow rate of methanol into a fuel mixer based upon a control signal output by the processor after the processor determines the concentration of methanol in the fuel sample.

21. A system according to claim 18, wherein the infrared source transmits narrow band infrared light.

22. A system according to claim 18, wherein said first opening includes a first thin layer filter and said second opening includes a second thin layer filter.